Capital flows and effects on financial markets in Korea: developments and policy responses

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I. Introduction

Despite having relatively sound macroeconomic fundamentals, Korea experienced a currency crisis at the end of 1997, as domestic banks faced difficulties renewing their overseas borrowings owing to contagion from the East Asian region. After the crisis, Korea changed its exchange rate regime from a market average exchange rate system to a free-floating system in December 1997. Along with this change, Korea switched its monetary policy framework from monetary targeting to inflation targeting with a call rate operating target. In addition, Korea has opened its domestic financial and capital markets step by step. The capital markets in Korea have now been opened in almost all areas, including equity and bond transactions. Investment overseas by residents has also been liberalised. As a result, capital inflows to and outflows from Korea have increased greatly.

With the deepened linkage between domestic and international financial markets, the domestic financial and foreign exchange markets are now significantly influenced by overseas factors. Korean policymakers have worked to minimise the possibility of negative effects arising from the much greater exposure of the Korean economy and its financial markets to external shocks such as changes in international capital flows. They will need to strengthen their various efforts in the future.

This paper is organised as follows. Section II describes the developments related to capital flows in Korea since 2002 and their characteristics. Section III analyses the impacts of capital flows on the domestic capital, deposit and foreign exchange markets. Lastly, Section IV deals with policy responses related to exchange rates, monetary policy and financial stability.

II. Capital flows in Korea

After the currency crisis at the end of 1997, Korea's capital account temporarily registered deficits in 1998 and 2001, owing to increased overseas loan payments triggered initially by difficulties in extending the maturities of loans and then by the early redemption of the country's IMF loan.

Since 2002, however, Korea's capital account has shown substantial surpluses, thanks to the increases in direct and indirect investment by foreign investors encouraged by strengthened corporate and financial restructuring.

In particular, both capital outflows and capital inflows have increased markedly since 2006. This reflects an increase in portfolio investment abroad by residents, a rapid rise in financial institution borrowing to meet the resulting demand for foreign currency, and an increase in

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corporate trade credits. At the same time, the current account surplus has shown a gradual decline.

Table 1

Capital account trends in Korea

In billions of US dollars

	91–96[1]	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Capital account[2] (A–B)	11.5	1.9	–3.4	2.4	12.7	–2.7	7.3	15.3	9.4	7.1	21.1	8.6
Inflows (A)	23.1	17.9	–3.7	7.6	20.1	–2.0	12.3	27.5	29.5	24.7	59.5	84.7
Outflows (B)	11.6	16.0	–0.3	5.2	7.4	0.7	5.0	12.2	20.1	17.6	38.4	76.1

[1] Based on yearly averages. [2] Excludes the other capital account (eg migrants' transfers, patent right sales) from the capital account (BOP basis).

Source: Bank of Korea.

1. Capital inflows

During 2002–05, gross capital inflows to Korea averaged USD 23.5 billion a year. This was led largely by foreign portfolio and direct investment, which accounted for 54.2% and 22.8% of total capital inflows, respectively. Of the foreign portfolio investment, investment in equity securities was a little greater than that in debt securities. Major factors behind the increase in direct and portfolio investment inflows were Korea's improved credit ratings after the early IMF loan redemption in 2001, the country's improved economic fundamentals, and its improved investment environment due to the continuation of corporate and financial restructuring. Owing to the increased export and import volume, corporate trade credits expanded during the period and accounted for 27.3% of total capital inflows.

Gross capital inflows were about USD 60 billion and USD 85 billion in 2006 and 2007, respectively, or 2.6 times and 3.6 times the yearly average for 2002–05 as shown in Graph 1. This was driven largely by increased financial institution borrowing to meet demand for foreign currency, owing to a reversion to net outflows in foreign equity investment and increases in portfolio investment abroad by residents. At the same time, the current account surplus declined substantially due to the won's rapid appreciation.

The composition of gross inflows has changed significantly. Gross inflows in foreign equity investment have been negative in recent years, reaching USD –28.7 billion in 2007, more than triple the USD –8.4 billion recorded in 2006. This is mainly because international investment banks and hedge funds sold the Korean stocks in which they had invested, in order to compensate for their losses related to the US subprime mortgage crisis. Behind the outflows of foreign equity investment were background factors such as the relatively high weight of foreign investment in the Korean stock market compared to other emerging economies' stock markets, the surge in capital gains due to the recent rise in stock prices, and an environment in which retrieving an investment is easy owing to the abundant liquidity in the Korean stock market. It is hard to see this as a "sell Korea" trend, because foreign ownership in the Korean stock market, as of the end of 2007, stood at 30.9%, higher than the average (27~28%) in emerging economies, and also because Korea still has strong economic fundamentals. In contrast, foreign investment in the bond market has risen greatly.

It increased by USD 52.1 billion in 2007 and hovered above net outflows of foreigners' investment from the stock market. This was due to a greater incentive for arbitrage, created by a drop in swap rates resulting from massive sales of forward dollars by export companies, including those in the shipbuilding industries, and by asset management companies promoting residents' foreign securities investment to hedge their own exchange rate risks. As part of this trend, financial institution borrowings rose sharply and have accounted for 59.4% of total capital inflows since 2006. Trade credits have also increased, owing to an expansion in import volume. The weight of foreigners' portfolio investment has, however, decreased to 15.9%, due to net declines in foreign portfolio investment in the equity market. In contrast, the ratio of foreign investment to total inflows in the bond market has increased to 26.7%. The ratio of foreign direct investment to total inflows has also decreased, to 3.6%.

Table 2

Trends of capital inflows to Korea

In billions of US dollars

	2001	2002	2003	2004	2005	2006	2007	2002–05[1,3]	2006–07[1,3]
FDI	3.5	2.4	3.5	9.2	6.3	3.6	1.6	5.4 (22.8)	2.6 (3.6)
Portfolio investment	11.7	4.5	21.5	16.0	9.0	0.4	23.3	12.7 (54.2)	11.5 (15.9)
(Equity investment)	10.3	0.4	14.4	9.5	3.3	–8.4	–28.7	6.9 (29.3)	–18.6 (–18.1)
(Bond investment)	1.4	4.1	7.1	6.5	5.7	8.0	52.1	5.8 (24.8)	30.0 (26.7)
Bank borrowings	–13.2	1.9	–5.0	–0.9	1.0	44.2	41.6	–0.8 (–3.2)	42.9 (59.4)
Trade credits	–2.8	3.5	6.3	8.1	7.8	13.1	13.6	6.4 (27.3)	13.3 (18.5)
Other	–1.2	0.0	1.2	–2.9	0.6	–0.9	4.7	–0.2 (–1.1)	1.9 (2.6)
Gross inflows[2]	–2.0	12.3	27.5	29.5	24.7	59.5	84.7	23.5 (100)	72.1 (100)

[1] Yearly averages. [2] Excludes the other capital account (eg migrants' transfers, patent right sales) from the capital account (BOP basis). [3] Figures in parentheses refer to the weights in total inflows.

Source: Bank of Korea.

2. Capital outflows

During 2002–05, gross capital outflows from Korea averaged USD 13.7 billion a year. This was mainly led by residents' portfolio investment and direct investment abroad. The former accounted for 46.3% of total capital outflows and the latter for 27.3%. In portfolio investment, investment in bonds was a little greater than that in equities. However, both corporate trade credits and loans for non-residents were negligible.

Capital outflows from Korea have grown considerably since 2006. They totalled USD 38.4 billion in 2006 and USD 76.1 billion in 2007, 2.8 and 5.6 times greater, respectively, than the 2002–05 averages, as shown in Graph 1. In particular, portfolio investment increased from USD 6.3 billion during 2002–05 to USD 42.4 billion in 2007, accounting for 56% of total capital outflows for the year. Most of the portfolio investment abroad has been in the form of equities, whereas bond investment has been a small sum. This big increase in capital outflows has been due mainly to the measures to promote residents' portfolio investment abroad since early 2006.[2] Direct investment abroad by residents quadrupled from USD 3.8 billion, the yearly average over 2002–05, to USD 15.3 billion in 2007. However, the ratio of direct investment abroad to total capital outflows decreased to 20.4% during 2006–07.

Table 3

Trends of capital outflows from Korea

In billions of US dollars

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2002–05**[1,3]	**2006–07**[1,3]
Direct inv abroad	2.4	2.6	3.4	4.7	4.3	8.1	15.3	3.8 (27.3)	11.7 (20.4)
Portfolio inv	5.1	3.8	3.6	7.4	10.7	22.4	42.4	6.3 (46.3)	32.4 (56.5)
(Equity inv)	0.5	1.5	2.0	3.6	3.7	15.3	52.4	2.7 (19.6)	33.9 (59.1)
(Bond inv)	4.6	2.3	1.6	3.8	7.0	7.1	–10.0	3.6 (26.7)	–1.5 (–2.6)
Bank loans	–3.1	–4.8	4.5	2.4	–0.3	1.3	10.3	0.5 (3.4)	5.8 (10.1)
Trade credits	1.2	0.7	0.0	1.0	–0.5	1.6	2.0	0.3 (2.2)	1.9 (3.2)
Other	–4.9	2.7	0.7	4.7	3.4	5.1	6.1	2.8 (20.8)	5.6 (9.7)
Gross outflows[2]	0.7	5.0	12.2	20.2	17.6	38.4	76.1	13.7 (100)	57.3 (100)

[1] Yearly averages. [2] Excludes the other capital account (eg migrants' transfers, patent right sales) from the capital account (BOP basis). [3] Figures in parentheses refer to the weights in total outflows.

Source: Bank of Korea.

3. Net capital flows

During 2002–05, net capital flows to Korea amounted to average inflows of USD 9.8 billion a year. This was driven mainly by net portfolio investment and net trade credits, which averaged about USD 6 billion each over the period. In portfolio investment, net investment in equities was a little larger than that in bonds. However, other items, including cash and deposits and banks' net borrowings, registered net outflows.

Meanwhile, net capital inflows to Korea have grown greatly since 2006. In 2006, they stood at USD 21.1 billion, more than twice the 2002–05 average. They showed a further increase of USD 8.6 billion in 2007. This increase over the past two years has been led mainly by banks' net borrowings, which accounted for USD 37.1 billion, and net trade credits, which made up USD 11.5 billion. However, portfolio investment recorded net outflows of USD 20.9 billion, owing to a large decrease in net equity investment (USD 52.4 billion) and despite a sharp increase in net bond investment (USD 31.5 billion). In addition, direct investment has reverted to a net outflow.

[2] All restrictions on the range of foreign currency securities in which residents can invest were abolished and the limit on overseas investment funds was increased in March 2006.

Table 4

Trends of net capital flows in Korea

In billions of US dollars

	2001	2002	2003	2004	2005	2006	2007	2002–05[1]	2006–07[1]
Net direct inv	1.1	–0.2	0.1	4.6	2.0	–4.5	–13.7	1.6	–9.1
Net portfolio inv.	6.6	0.7	17.9	8.6	–1.7	–22.7	–19.1	6.4	–20.9
(Equity inv.)	9.8	–1.1	12.4	5.8	–0.4	–23.7	–81.2	4.2	–52.4
(Bond inv.)	–3.2	1.8	5.5	2.8	–1.3	0.9	62.1	2.2	31.5
Net bank borrowings	–10.1	6.7	–9.5	–3.3	1.3	42.9	31.2	–1.2	37.1
Net trade credits	–4.0	2.7	6.3	7.1	8.2	11.5	11.5	6.1	11.5
Other	3.7	–2.6	0.5	–7.6	–2.7	–6.0	–1.3	–3.1	–3.7
Total net flows[2]	–2.7	7.3	15.3	9.4	7.1	21.1	8.6	9.8	14.9

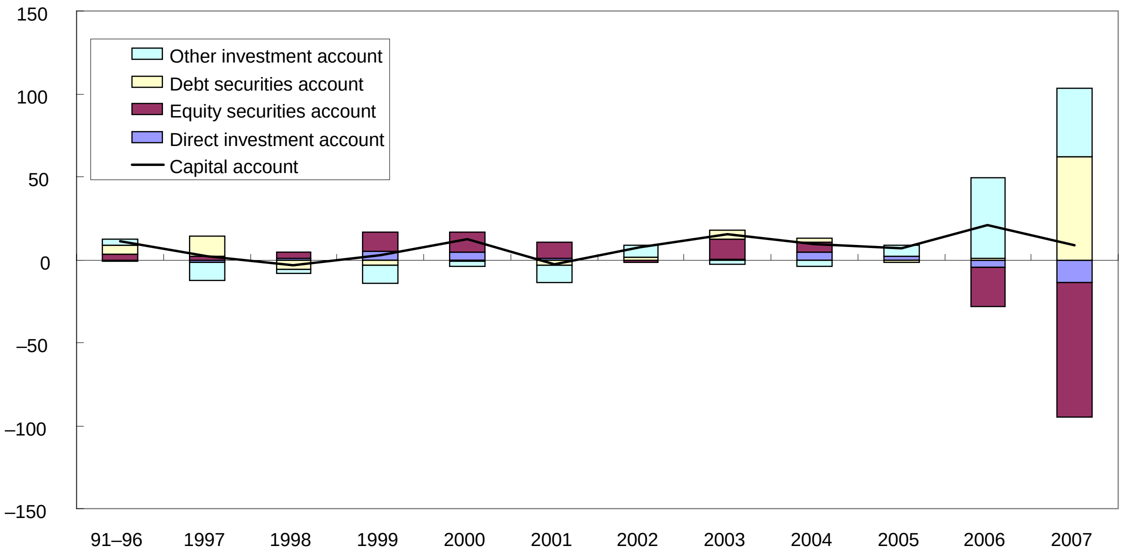
[1] Yearly averages. [2] Excludes the other capital account (eg migrants' transfers, patent right sales) from the capital account (BOP basis).

Source: Bank of Korea.

Graph 1

Trends of capital account by composition in Korea

In billions of US dollars



Source: Bank of Korea.

III. Effects of capital flows on domestic financial markets

After the currency crisis in 1997, Korea liberalised the capital account and introduced a free-floating exchange rate system. Since then, capital inflows and outflows have expanded, particularly during 2006 and 2007 when they increased substantially. These trends largely reflected sharp increases in the export orders of Korean shipbuilding companies and in residents' portfolio investment abroad and the resulting greatly increased hedging through the forward markets. These changes in capital flows have influenced the development of Korean financial markets and strengthened the linkage between domestic and international financial markets.

1. Capital market

Stock market

Since the currency crisis at the end of 1997, sustained large-scale foreign investment inflows have fostered the development of the Korean stock market in terms of both quantity and quality, through expansion of the stock demand base.

In terms of quantity – first, the volume of stock transactions stood at about 265 billion shares in 2005, 22 times the 12.2 billion recorded in 1997. Second, the Korean stock price index (KOSPI) reached 1,379 at the end of 2005, 3.7 times the 376 at the end of 1997. Third, total market capitalisation of listed shares amounted to KRW 726 trillion (equivalent to USD 718 billion) at the end of 2005, compared to KRW 78 trillion (USD 46 billion) at end-1997.

From the perspective of quality – first, the composition of stock market participants' shareholdings has changed drastically. Between 1998 and 2005, the proportion of shareholdings of foreigners and institutional investors increased from 18% and 13.7% to 37.2% and 18.6%, respectively, while that of government and public bodies decreased from 19.7% to 3.7%, indicating an expansion of the Korean stock market's investor base. Second, the equity derivatives markets such as the KOSPI futures and KOSPI options have made considerable progress, and the equity derivatives market structure has deepened. The daily volume of KOSPI 200 futures transactions totalled 176,000 contracts at the end of 2005, a sixteenfold increase over the 11,000 contracts at the end of 1997. In addition, the daily volume of transactions in KOSPI 200 options rose 318 times from 32,000 contracts at the end of 1997 to 10,182,000 at the end of 2005.

Despite foreigners' stock investment having reverted to a net selling position since 2006, the Korean stock market has shown sustained stable growth, as the KOSPI has risen greatly and transactions have maintained relatively high volumes thanks to the expansion of both market scale and investor base. First, although the volume of stock transactions has more or less declined compared with 2005, amounting to 203 billion shares in 2006 and 233.6 billion in 2007, it still represents a high level. Second, the KOSPI has maintained a strong upward trend, reaching 1,434 points at the end of 2006 and climbing further to 1,897 at the end of 2007, even though the proportion of foreigners' shareholdings has declined. Third, market capitalisation has expanded considerably, from KRW 777 trillion (equivalent to USD 835 billion) at the end of 2006 to KRW 1,052 trillion (USD 1,124 billion) at the end of 2007. Lastly, the equity derivatives market has grown steadily, showing a recovery trend where the daily transaction volume in KOSPI 200 futures was 189,000 contracts at the end of 2006 and 195,000 contracts at the end of 2007, while the daily transaction volume in the KOSPI 200 options market was 9,775,000 contracts at end-2006 and 11,076,000 contracts at the end of 2007.

Table 5

Key Korean stock market indicators

	1997	1999	2001	2003	2004	2005	2006	2007
Transaction volume[1]	12.2	78.0	210.8	234.7	164.3	265.3	203.0	233.6
Market capitalisation[2, 3]	78.1	448.2	307.7	392.7	443.7	726.0	776.7	1,051.8
KOSPI[2]	376	1,028	694	811	896	1,379	1,434	1,897
Foreign shareholding proportion[2, 4]		18.5	32.2	37.7	40.1	37.2	35.2	30.9
Transaction volume of KOSPI 200 futures[5]	11	69	128	252	223	176	189	195
Transaction volume of KOSPI 200 options[5]	32	321	3,347	11,489	10,127	10,182	9,775	11,076

[1] In billions of shares. [2] Period-end basis. [3] In trillions of won. [4] Market capitalisation (KOSPI + KOSDAQ) basis, in per cent. [5] Daily average, in thousands of contracts.

Source: Korea Exchange.

With the increase in foreigners' investment in the Korean stock market, there has been greater coupling of the movements of domestic and US stock prices. During the period 1999–2006, the correlation of the KOSPI with the Nasdaq and Dow Jones indices averaged 0.72 and 0.61, respectively.

Table 6

Correlation between the KOSPI and US stock indices

	1995–97	1999	2001	2003	2005	2006	1999–2006
Nasdaq	–0.17	0.71	0.46	0.95	0.79	0.79	0.72
Dow Jones	–0.27	0.88	0.48	0.95	0.38	0.58	0.61

Source: Bank of Korea, *Monthly Bulletin*, September 2007.

The increase in foreigners' investment, which enables the investor base of the domestic stock market to expand and also provides more ample liquidity, could have positive effects on the Korean stock market. However, in the case of continued large-scale inflows and outflows of foreigners' investment, this is likely to cause domestic financial market volatility, particularly due to the amplification of stock price volatility.

Bond market

Until 2005, foreign investment in the Korean bond market was smaller than that in the Korean stock market. The investment was also limited to Korean Treasury bonds (KTBs) and monetary stabilisation bonds (MSBs) issued by the government and the Bank of Korea, respectively. The foreign-held share in total KTBs and MSBs outstanding stood at only 1.0% at the end of 2005. However, inflows of foreigners' investment to the KTB and MSB markets increased substantially in 2007, with the foreign share rising to 9.5% at the end of that year. The rise of foreign ownership in the Korean bond market has been mainly attributable to foreign investors' increased buying of KTBs and MSBs at the cost of the Korean won in exchange for foreign currency funds through currency rate swaps (CRS pay or sell & buy swaps) due to the increase in arbitrage incentives.

Table 7

Swap rates and domestic-foreign interest rate differentials

Annual, in per cent

	2004	2005	2006	2007
Foreign currency swap rate (A)[1]	2.19	0.04	–0.77	–1.40
Domestic-foreign interest rate differential (B)[2]	2.14	0.09	–0.51	–0.14
Difference (A–B)	0.05	–0.05	–0.26	–1.26

[1] (Three-month non-deliverable forward (NDF) rate/spot exchange rate – 1) × 4 (annual %); NDF rate based on bid-offer midrate published by ICAP as of 15:00. [2] Certificates of deposit (three-month) – Libor (three-month).

Source: Bank of Korea.

Foreign investors also play a major role in the KTB futures market. The proportion of foreigners' transactions rose sharply, from 9.9% in 2005 to 14.3% in 2006. The KTB futures market has thus also made considerable progress in terms of quality, supported by foreign investor participation.

In the meantime, Korean bond investment (net buying basis) by foreign bank branches totalled less than USD 1 billion in 2005 but then increased sharply, by USD 17 billion in 2006 and by USD 14 billion in 2007. Along with this, the share of banks' transactions in the KTB futures market has maintained a strongly upward trend, and a substantial part of this seems to be attributable to transactions by foreign bank branches.

Foreigners' influence on KTB yields has recently grown. The negative correlation between the foreign ownership ratio and the interest rate gap (KTB yield minus the call rate) has become more evident, with the correlation coefficient shifting from 0.06 during 2000–04 to –0.15 during 2005–07.

Table 8

Korean bond market participation by foreigners and foreign bank branches

	2005	2006	2007
Net buying by foreigners (USD billions)[1]	0.6	1.5	32.2
Net buying by foreign bank branches (USD billions)[2]	0.9	17.4	13.8
Transaction vol of KTB futures (3-yr) (thousands of contracts)[3]	45	42	56
Ratio of foreigners' transaction in KTB futures (3-yr) (%)	9.9	14.3	11.8
Ratio of banks' transactions in KTB futures (3-yr) (%)	35.0	35.8	38.8

[1] In- and outflow basis; external accounts for securities investment. [2] Net buying basis. [3] Daily average.

Source: Korea Exchange, Korean Financial Supervisory Service.

2. Deposit market

Since 2003, the government has adopted various measures to encourage foreign securities investment. In March 2003 the range of foreign securities eligible for investment by residents was extended, and in March 2006 the Korean government abolished the limits on foreign securities investment by individual investors. From June 2007, the government also exempted domestic asset management companies from taxation on gains through overseas stock purchases in foreign investment funds. Thanks to these measures, residents' foreign portfolio investment has increased sharply, from USD 5.2 billion in 2003 to USD 56.1 billion in 2007.

Table 9

Residents' foreign securities investment[1, 2]

In billions of US dollars

	2002	2003	2004	2005	2006	2007
Residents' foreign securities investment	4.2	5.2	12.4	18.5	29.5	56.1
Change over previous year (%)		(23.8)	(138.5)	(49.2)	(59.5)	(90.2)

[1] Based on foreign exchange receipt and payment statistics. [2] Figures in parentheses indicate the percentage change rates compared with the same period of the previous year.

Source: Bank of Korea.

As residents' foreign securities investment has grown rapidly, there have been corresponding changes in the deposit market, including a decline in the volume of bank deposits (excluding certificates of deposit (CDs) and bank debentures) and a significant rise in deposits at asset management companies. Accordingly, the share of bank deposits in the total sum of the two decreased to 73% at the end of 2007, from 81% in 2003. The savings outflow from banks into asset management companies has thus continued, leading to more difficult financing circumstances. In reaction to this, banks have augmented their issuance of CDs and bank debentures to ensure sufficient fund-raising, leading to increases in interest rates on CDs and bank debentures.

Table 10

Changes in deposits at banks and asset management companies

	2002	2003	2004	2005	2006	2007
Bank deposits (A)[1]	580.8	630.8	642.6	686.7	759.8	810.8
(CD issuance amount)	18.3	29.9	39.2	55.6	66.9	95.2
(Debenture issuance amount)	46.0	56.1	68.5	76.7	108.3	137.5
Asset management company deposits (B)[1]	174.9	145.0	187.0	204.3	234.6	296.4
Total (A+B)[1]	755.7	775.8	829.6	891.0	994.4	1,107.2
C = [A/(A+B)]	0.77	0.81	0.77	0.77	0.76	0.73
D = [B/(A+B)]	0.23	0.19	0.23	0.23	0.24	0.27
CD interest rates[2]	4.79	4.27	3.46	4.25	4.77	6.04
Bank debenture interest rates[2]	5.04	4.78	3.48	4.94	4.96	6.42

[1] Based on period-end figures, in trillions of won. [2] Based on figures for new issuances; average annual interest rates in December; in per cent.

Source: Bank of Korea.

3. Foreign exchange market

The average amount of daily trading in the spot foreign exchange market has seen a considerable increase of 30% annually from 2002 to 2007, reaching USD 18.8 billion in 2007 compared to USD 5 billion in 2002. This significant growth in transactions in the spot market is due to several factors. First, Korea's export-import volume has expanded by 19% a year on average since 2002. Second, the total amount of inflows and outflows of investments by foreigners has gone up greatly. Third, due to the increase in arbitrage trading incentives since 2006, financial institutions' net borrowings rose to USD 42.9 billion and USD 31.2 billion in 2006 and 2007, respectively.

Table 11

Volumes of capital and spot exchange market transactions

In billions of US dollars

	2002	2003	2004	2005	2006	2007
Capital transactions (net)	6.3	13.9	7.6	4.8	18.0	6.2
(Foreign portfolio capital inflows)	73.0	83.3	122.6	166.2	237.4	371.9
(Foreign portfolio capital outflows)	74.6	70.8	113.2	167.6	250.6	400.8
(Financial institution net borrowings)	6.7	–9.5	–3.3	1.3	42.9	31.2
Amount of exports-imports[1]	312.1	372.6 (19.4)	477.9 (28.3)	545.3 (14.1)	635.8 (16.6)	728.6 (14.6)
Amount of spot exchange transactions[2]	5.0	5.6 (11.3)	8.6 (53.5)	9.7 (12.4)	12.8 (31.7)	18.8 (47.1)

[1] Sum of exports and imports on a BOP basis; figures in parentheses indicate percentage change from previous year. [2] Daily average figures; figures in parentheses indicate percentage change from previous year.

Source: Bank of Korea.

In the meantime, the Korean won appreciated by 6% per year on average during the period 2002–06, notably by 11.8% and 7.2% in 2005 and 2006, respectively. The continued appreciation of the won has resulted from the growth in export volume and the increase in capital inflows amid continued depreciation of the US dollar in global financial markets since 2004.

Table 12

Changes in the USD/KRW exchange rate

In per cent

	2002	2003	2004	2005	2006	2007
Period-end basis	10.5	0.2	14.8	3.0	9.0	–0.9
Average yearly change basis	3.2	5.0	4.1	11.8	7.2	2.8

Figures represent appreciation (+) or depreciation (–) percentages.

Source: Bank of Korea.

As the amount of spot exchange trading and the demand for hedging have increased, the trading of forwards and currency derivatives has grown rapidly. Forward trading, including trading of NDFs, has increased 43% per year on average since 2002. This has been attributable largely to the fact that export companies and asset management companies dealing with foreign securities investment have stepped up their forward selling. Domestic securities investment by non-residents has also risen. Moreover, the scale of trade in foreign currency derivative products such as FX swaps and cross currency swaps has expanded significantly, due to the increased scale of transactions by banks seeking to adjust foreign exchange positions induced by the forward trading of export companies and asset management companies.

Table 13

Forward and derivative transaction amounts

In billions US dollars

	2002	2003	2004	2005	2006	2007
Amount of foreign exchange transactions[1]	9.1	12.0 (32.0)	18.6 (55.1)	22.3 (20.0)	30.2 (35.0)	46.5 (54.2)
Spot exchange	5.0	5.6 (11.3)	8.6 (53.5)	9.7 (12.4)	12.8 (31.7)	18.8 (47.1)
Forwards	1.2	2.1 (66.9)	3.0 (43.0)	3.6 (22.0)	5.1 (40.7)	7.2 (40.9)
FX swaps	2.0	3.0 (54.4)	5.2 (71.4)	6.5 (25.4)	7.8 (19.8)	12.2 (56.9)
Other currency derivatives[2]	0.9	1.3 (54.1)	1.9 (43.5)	2.6 (37.8)	4.6 (76.8)	8.4 (84.3)

[1] Daily average. [2] Includes currency derivatives and interest rate derivatives; figures in parentheses indicate percentage change from previous year.

Source: Bank of Korea.

IV. Policy responses

After the currency crisis at the end of 1997, Korea's current account continued to register large surpluses, thanks to strengthened export competitiveness boosted by the sharp depreciation of the won until 2001. The capital account has also recorded large surpluses since 2002. This environment accordingly increased pressure for monetary expansion through the foreign sector, and added more pressure for Korean won appreciation. In response to these pressures, the conduct of efficient monetary and exchange rate policies has emerged as a major challenge in macroeconomic policy, for both price stability and sustainable economic growth. Meanwhile, the scale and frequency of capital flows have increased in line with the gradual liberalisation of the capital account. Maintaining the stability of individual financial institutions and the financial markets as a whole has therefore also emerged as an important policy issue.

1. Greater exchange rate flexibility

The large-scale current and capital account surpluses have put appreciation pressures on the won since 2002, along with the rise of Korea's sovereign credit ratings. There were concerns that excessive currency appreciation at a time when Korea had just recovered from the currency crisis might worsen the Korean economy by causing a decrease in exports and a slowdown in economic growth. To cope with this, the authorities took various measures to promote capital outflows through increased direct and indirect overseas investment by residents, in order to balance supply and demand in the foreign exchange market. For example, the range of foreign securities in which residents can invest was extended in March 2003, and all restrictions on them were abolished in March 2006.

Measures to promote capital outflows from Korea

In order to ease the one-sided trend of won appreciation by promoting a balance between supply and demand in the FX market, the authorities took measures to encourage a gradual increase in overseas direct and indirect investment by residents.

1. Overseas direct investment

In January 2003, the limit on overseas direct investment in financial and insurance companies by residents, excluding financial institutions, was adjusted upwards from USD 100 million per case to USD 300 million. In July 2005, the limit was removed. Meanwhile, the limit on individuals' overseas direct investment was twice adjusted upwards, in July 2005 and January 2006 (from USD 1 million to USD 3 million, and then to USD 10 million). In March 2006, it was completely lifted.

2. Overseas portfolio investment

The range of foreign securities in which residents can invest was extended in March 2003, and all restrictions on them were abolished in March 2006. Overseas investment funds were exempted from capital gains taxation in June 2007.

3. Overseas real estate investment

The limit on the value of an individual's residential property overseas was raised in July 2005 and January 2006 (from USD 300,000 to USD 500,000 to USD 1 million). It was lifted completely in March 2006. In May 2005, investors were allowed to acquire overseas real estate worth up to USD 1 million for investment purposes. In February 2007, that ceiling was raised to USD 3 million, and it is planned to abolish it in 2008.

However, won appreciation pressures have continued due to the sound fundamentals of the Korean economy and the surpluses in both the current and the capital account since 2002. Thus, the authorities have had no choice but to accept the won's appreciation trend based on the judgment that acting against the trend was inappropriate. This has been not only because of the tremendous costs of countering the trend, but also because of the resultant negative impacts on economic stability and growth in the medium and long term from distortions in the foreign exchange and financial markets. The authorities have conducted limited smoothing operations, to ease unstable market sentiments only in case of excessive fluctuation over a short period. As a result, the Korean won has strengthened greatly against major currencies such as the US dollar since the end of 2001. The won appreciated by a total of 38.9% against the dollar and 34.5% against the yen during 2002–07, on an annual average basis. In particular, the extent of won appreciation against the US dollar over the period is larger than the appreciation of the yen, the renminbi and major competitive currencies in Southeast Asia.

Table 14

Changes in the exchange rates of selected currencies

In per cent

	2001	2002	2003	2004	2005	2006	2007	2002–07
Won/US dollar[1]	–12.4 (–5.0)	3.2 (10.5)	5.0 (0.2)	4.1 (14.8)	11.8 (3.0)	7.2 (9.0)	2.8 (–0.9)	38.9 (41.3)
Won/100 yen[1]	–1.3 (9.1)	6.3 (–0.3)	–2.9 (–9.5)	–2.7 (10.6)	13.8 (17.7)	13.3 (10.0)	4.0 (–6.2)	34.5 (21.1)
Yen/US dollar[2]	–11.3	–2.9	8.0	7.2	–1.9	–5.2	–1.2	3.2
US dollar/euro[2]	–3.0	5.5	19.6	10.0	0.0	0.9	9.1	52.9
New Taiwan dollar/ US dollar[2]	–7.6	–2.1	0.4	2.9	3.9	–1.1	–1.0	2.9
Singapore dollar/US dollar[2]	–3.7	0.1	2.7	3.1	1.5	4.7	5.5	18.9
Renminbi/US dollar[2]	0.0	0.0	0.0	0.0	1.0	2.7	4.8	8.8
Baht/US dollar[2]	–9.6	3.4	3.5	3.2	–0.1	6.2	17.4	37.6

[1] Appreciation (+) or depreciation (–) of the won against the US dollar and the yen over the specified periods, on an annual average basis. Figures in parentheses represent the appreciation (+) or depreciation (–) over the specified periods on a period-end basis. [2] Appreciation (+) or depreciation (–) of the currency indicated against the US dollar over the specified periods, on an annual average basis.

Source: Bank of Korea, Bloomberg.

2. Effective implementation of monetary policy

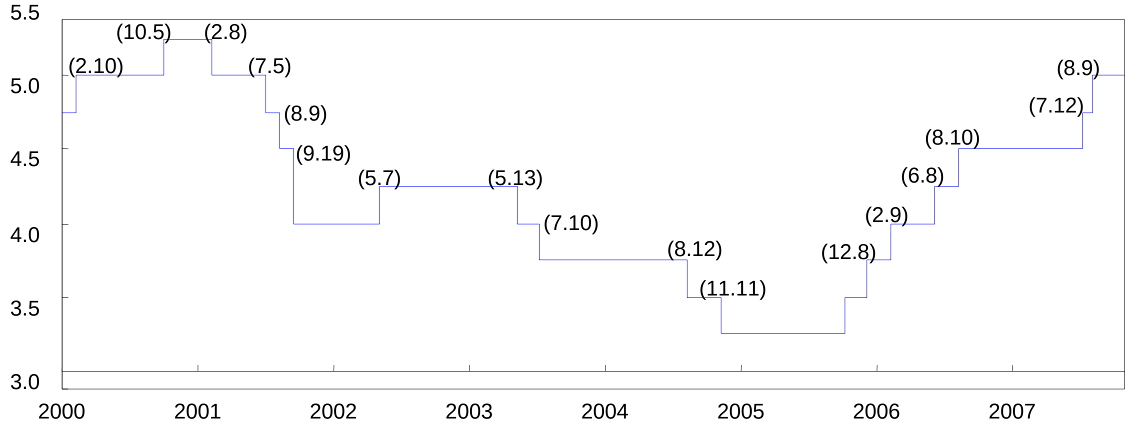
The Bank of Korea has striven to absorb a considerable amount of excess liquidity from the foreign sector by issuing monetary stabilisation bonds (MSBs). As a result, the outstanding amount of MSBs has increased gradually, with the ratio of the outstanding amount of MSBs to M2 rising from 10.3% at the end of 2001 to 15.2% at the end of 2005. There has been growing concern that this excessive issuance of MSBs is limiting the effective implementation of monetary policy. To cope with this, the Bank of Korea has taken various measures since late 2005. It raised its policy rate (the overnight call rate) seven times, by a total of 1.75 percentage points (from 3.25% to 5.0%) from October 2005 to August 2007, to maintain sufficient market liquidity. It also raised the reserve requirement ratio from 3.0% to 3.8% on average in December 2006. In 2007, meanwhile, large-scale sales of forward contracts by shipbuilding firms to hedge their exchange rate risk, and massive outflows in the form of residents' overseas portfolio investment, stimulated spot foreign exchange demand from banks for the adjustment of their foreign exchange positions. After August 2007, the worsening defaults on US subprime mortgage loans and the consequent increase in international financial market unrest led to more difficult financing conditions for domestic financial institutions. In the course of this process, the imbalance in the currency swap market deepened, forcing the Bank of Korea to participate in the market from September 2007 as a sell & buy trader to mitigate the disequilibrium.

Thanks to these measures, MSB issuing conditions have improved, partly reimbursing MSBs in circulation, and the ratio of the amounts outstanding of MSBs to M2 declined to 11.8% at the end of 2007.

Graph 2

Overnight call rate target adjustments

Annual basis, in per cent



Figures in parentheses are the call rate target adjustment dates.

Source: Bank of Korea.

Table 15

Monetary stabilisation bonds outstanding

In billions of US dollars

	2001	2002	2003	2004	2005	2006	2007
Capital and financial account[1]	–2.7	7.3	15.3	9.4	7.1	21.1	8.6
Current account	8.0	5.4	12.0	28.2	15.0	5.4	6.0
MSBs outstanding (A)[2]	60.2	71.0	88.5	137.9	153.5	170.3	160.6
M2 outstanding (B)[2]	582.4	735.2	753.0	922.3	1,009.7	1,236.0	1,360.6
A/B (in per cent)	10.3	9.7	11.8	15.0	15.2	13.8	11.8

[1] Excludes the other capital account (eg migrant transfers, patent right sales) from the capital account (BOP basis). [2] End-of-year, converted using the period-end FX rates.

Source: Bank of Korea.

3. Strengthening of prudential regulation for financial market stability

Since the financial crisis at the end of 1997, the Korean government has expanded the opening of the domestic financial and capital markets to promote foreign capital inflows, as well as enlarging the permitted amount of residents' overseas investment in stages since 2003. In accordance with this, the scale and frequency of capital movements have increased significantly. As a result, domestic financial institutions and the financial market as a whole have become increasingly affected by changes in the international financial markets. In particular, drastic capital outflows led by external shocks could disrupt the stability of individual financial institutions. In response to these challenges, and based on the lessons of the previous financial crisis, the financial supervisory authority has taken complementary measures to maintain the soundness of individual financial institutions' operations in foreign assets and liabilities.

As a first step, the authority set up the Foreign Exchange Soundness Guiding Ratios,[3] to force domestic financial institutions to reduce the possibility of mismatches between their foreign currency assets and liabilities. It also established the Foreign Exchange Risk Management Indication Standards[4] and induced financial institutions to strengthen their internal risk management to deal with foreign exchange risk based on these standards.

In the face of capital liberalisation, the increasing diversity and complexity of financial transactions have in the meantime made it difficult for the supervisory authority as well as financial institutions to gauge and evaluate the related risks. Taking this into consideration, the supervisory body has reinforced its monitoring of capital inflows and outflows and has worked to foster expertise in financial derivatives to strengthen its analysis of the derivatives market. Furthermore, the foreign exchange authority has pledged to drastically relax or remove ex ante transaction restrictions regarding external transaction activities, while also switching to a reporting obligation system from the previous requirement that market participants wishing to transact receive authorisation or permission. As a countermeasure, it is therefore undertaking expansion and improvement of the FEIS (Foreign Exchange Information Systems) to strengthen its monitoring of such capital transactions. Through the FEIS, the authority has not only reinforced its monitoring of overseas foreign currency borrowing and changes in the foreign currency conditions of financial institutions, but has also carried out ordinary surveillance and analysis, particularly of unusual, odd and huge transactions, with an emphasis on capital and derivatives trades.

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[3] The guidelines are as follows:

(i) Liquidity ratio in foreign currency (ratio of foreign currency assets within three months of residual maturity to foreign currency liabilities within three months of residual maturity): 85/100 or above.

(ii) Ratios of maturity mismatch between foreign currency assets and liabilities (ratios of assets exceeding liabilities to total assets) for residual maturities of seven days or less: 0/100 or above; for residual maturities of one month or less: 10/100 or below.

(iii) Ratio of funding resources for medium- and long-term loans in foreign currency: for foreign currency loans granted with maturities of one year or longer, 80/100 or more of the loan amounts shall be covered by foreign currency borrowings with maturities of one year or longer.

[4] The Foreign Exchange Risk Management Indication Standards have specifically been set up by the supervisory authority to deal with the foreign exchange risks of financial institutions, such as country risk, large credit risk, financial derivatives transaction risk and market risk.

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